

IN THE CLAIMS

The presently pending claims are reproduced below for convenience.

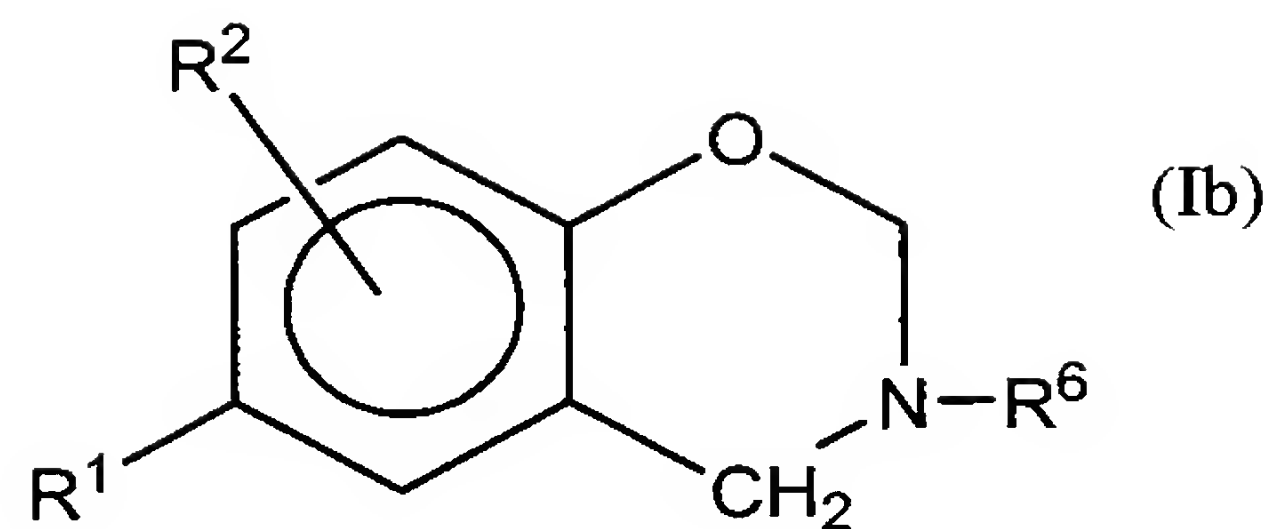
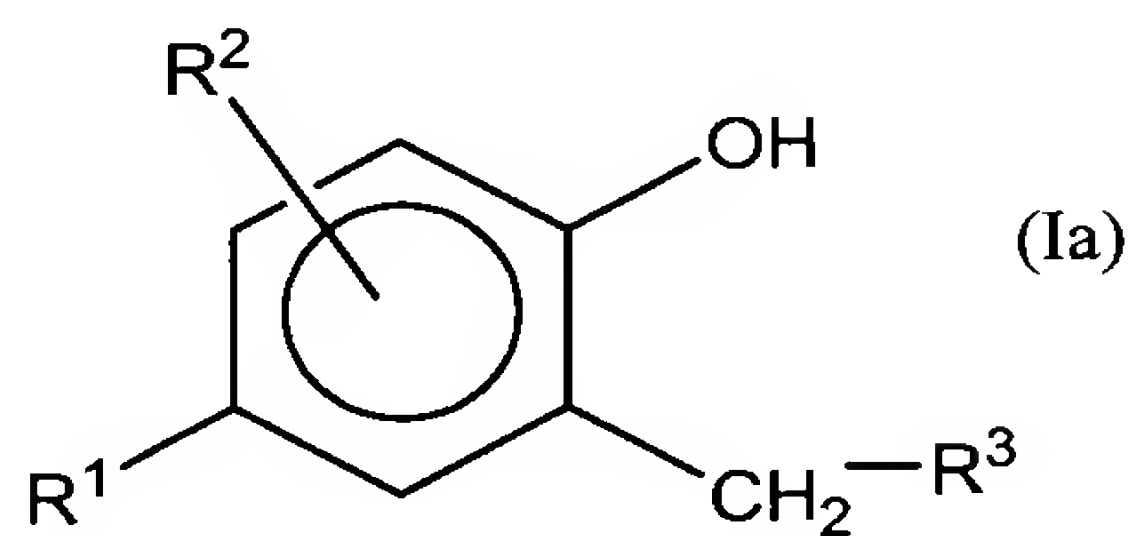
Claims 1-92 (Canceled).

Claim 93 (Previously Presented): A process for the preparation of polyisobutenylphenol-containing Mannich adducts, comprising:

- a) alkylating a phenol with a highly reactive polyisobutene having a vinylidene double bond content of more than 70 mol%, a number average molecular weight of less than 900, and a polydispersity of less than 3.0 at below about 50°C, wherein the alkylating is carried out in the presence of an alkylation catalyst to form a reaction product; and
- b) reacting the reaction product from a) with
  - b1) at least one aldehyde selected from the group consisting of formaldehyde, an oligomer of formaldehyde and a polymer of formaldehyde, and
  - b2) at least one amine of the formula  $\text{NHR}^4\text{R}^5$  where  $\text{R}^4$  and  $\text{R}^5$  are  $\text{C}_1$ - to  $\text{C}_{20}$  alkyl radicals.

Claim 94 (Previously Presented): The process as claimed in claim 93, wherein the amine reacted with the reaction product is at least one selected from the group consisting of dimethylamine and diethylamine.

Claim 95 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising at least 40 mol% of at least one compound selected from the group consisting of formula (Ia) and (Ib),

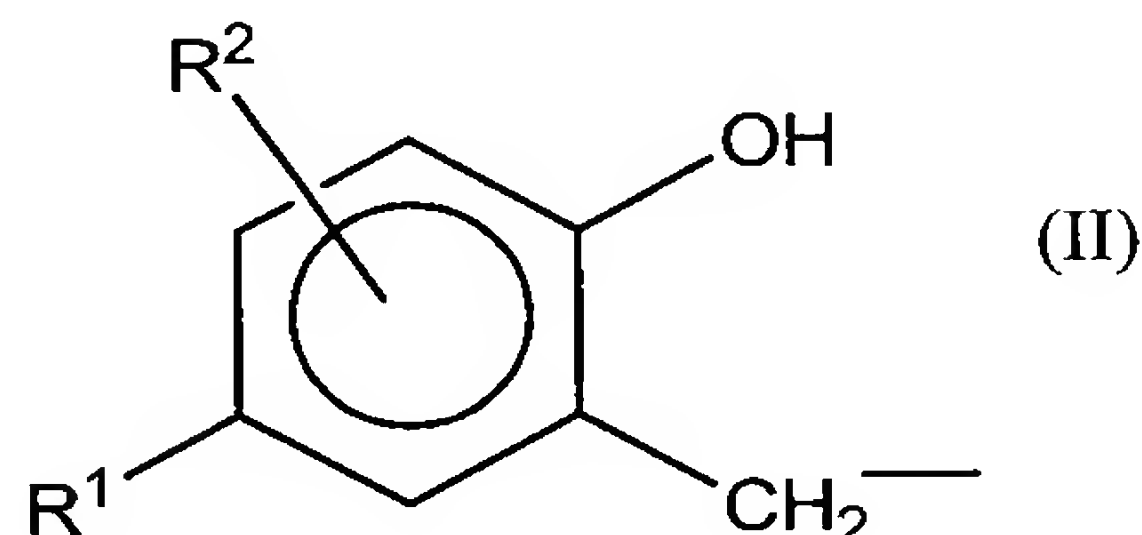


wherein

$R^1$  is a terminally bonded polyisobutenyl radical,

$R^2$  is H,  $C_1$ - to  $C_{20}$ -alkyl,  $C_1$ - to  $C_{20}$ -alkoxy, hydroxyl, a polyalkylenyl radical or  $CH_2NR^4R^5$ , where  $R^4$  and  $R^5$  have the meanings stated below, and

$R^3$  is  $NR^4R^5$ , where  $R^4$  and  $R^5$ , independently of one another, are  $C_1$ - to  $C_{20}$ -alkyl radicals and phenol radicals of the formula II



where  $R^1$  and  $R^2$  are as defined above;

with the proviso that  $R^4$  and  $R^5$  are not simultaneously H or phenol radicals of the formula II; or  $R^4$  and  $R^5$ , together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two heteroatoms selected from the group consisting of N and O and may be substituted by one, two or three  $C_1$ - to  $C_6$ -alkyl radicals; and

$R^6$  is a radical  $R^4$  or  $R^5$  other than H.

Claim 96 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct having a polydispersity of from 1.1 to 3.5.

Claim 97 (Previously Presented); The process as claimed in claim 96, further comprising:

fractionating the reaction mixture from b) by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon, and then
- at least one basic alcohol/water mixture.

Claim 98 (Previously Presented): The process as claimed in claim 97, wherein the basic alcohol/water mixture comprises:

- a) from 75-99.5% by weight of at least one C<sub>2</sub>- to C<sub>4</sub>-alcohol,
- b) from 0.4-24.4% by weight of water, and
- c) from 0.1-15% by weight of at least one amine which is volatile at room temperature.

Claim 99 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising up to 20 mol% of one or more polyisobutenyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 100 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising from 1-15 mol% of one or more polyisobutenyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 101 (Previously Presented): A Mannich adduct obtained by the process as claimed in claim 93.

Claim 102 (Previously Presented): A Mannich adduct obtained by the process as claimed in claim 95, wherein the Mannich adduct comprises at least 40 mol% of one or more compounds of formula Ia and Ib.

Claim 103 (Previously Presented): A fuel and/or lubricant composition comprising a detergent effective amount of the Mannich adduct claimed in claim 101.

Claim 104 (Previously Presented): An additive concentrate, comprising:  
one or more conventional additive components, and at least one Mannich adduct as claimed in claim 101 in an amount of from 0.1 to 99% by weight.

Claim 105 (Previously Presented): An additive concentrate, comprising:  
one or more conventional additive components, and  
at least one Mannich adduct claimed in claim 101 in an amount of from 0.5 to 80% by weight.

Claim 106 (Previously Presented): A fuel composition, comprising:  
a major amount of at least one liquid hydrocarbon fuel, and  
at least one adduct as claimed in claim 101 in a detergent active effective amount.

Claim 107 (Previously Presented): A lubricant composition, comprising:  
a major amount of at least one of a liquid lubricant, a semisolid lubricant and a solid lubricant, and  
at least one adduct as claimed in claim 101 in a detergent active effective amount.

Claim 108 (Previously Presented): A gasoline or diesel fuel, comprising:  
  
the fuel composition claimed in claim 106.

Claim 109 (Previously Presented): The process as claimed in claim 93, wherein R1  
has a number average molecular weight of from 300 to 850.

Claim 110 (Previously Presented): The process as claimed in claim 95, wherein R<sup>3</sup> is  
NR<sup>4</sup>R<sup>5</sup> wherein R<sup>4</sup> and R<sup>5</sup>, independently of one another, are C<sub>1</sub>- to C<sub>20</sub>-alkyl radicals.